**County of Loudoun**

**Department of Planning**

**MEMORANDUM**

**Supplemental Memo**

**DATE:** December 10, 2009

**TO:** Planning Commission

**FROM:** Judi Birkitt, Department of Planning

**SUBJECT:** December 17, 2009 Planning Commission Public Hearing
Supplemental Information
ZMAP 2009-0005, SPEX 2009-0009 and CMPT 2009-0001
Green Energy Partners/Stonewall (GEP/S) Hybrid Energy Park

Since distribution of the Staff Report, the Applicant has provided additional information in response to the Staff Report. To address concerns on the visual appearance of the vapor plume, the Applicant has provided photographs of various vapor plumes under various weather conditions. Staff notes that the appearance of a vapor plume depends upon the weather (temperature, humidity, and wind). To address air quality, the Applicant has provided three charts that compare Nitrogen Oxide, Sulfur Dioxide, and Carbon Dioxide emissions of the proposed hybrid energy plant with Dickerson Power Station, Potomac River Power Station, and a typical "clean coal" facility. The Applicant has also provided a photograph of a solar array, two letters of support from the Virginia House of Delegates, and a color illustrative of the Concept Plan.

Staff has also received written comments from the Fairfax County Water Authority. As a downstream water supplier, their issue is the consumptive use of the water, making it unavailable to downstream users of the Potomac River. Staff notes that if the hybrid energy plant uses effluent from the Town of Leesburg, the hybrid energy park would use up to 5 million gallons of water per day that would have been treated by the Town of Leesburg and discharged into the Potomac River. To address Fairfax County Water Authority's concern, the Applicant has provided a chart demonstrating that the Potomac River's daily discharge is 2.5 billion gallons per day.

Since distribution of the Staff Report, the Applicant and Staff have continued to work towards resolving outstanding issues. The Applicant has agreed to the following and is currently revising proffer language and plans accordingly:

- Reserve 70 feet of right-of-way for Cochran Mill Road per the Revised Countywide Transportation Plan and dedicate it to the County at the County's request

- Enter into an agreement with one or both of Luck Stone and Loudoun Water to share the cost of constructing Gant Lane. Construct Gant Lane themselves if the other applications are withdrawn or denied.

- Dedicate an easement to the County for a trail on the north side of Sycolin Creek.

- Provide a 1-time fire and rescue contribution of $50,000.

Staff is currently reviewing the information provided by the Applicant. The conditions, findings, and proffers from the Staff Report remain the same. Staff's recommendation to send the application to work session for discussion remains the same.

**ATTACHMENTS:**

1. **Applicant's Color Illustrative of the Concept Plan** (12-09-09)

2. **Applicant's Vapor Plume Photographs** (12-09-09)

3. **Applicant's Solar Array Photograph** (09-07-09)

4. **Applicant's Letters of Support**
   a. David E. Poisson, Virginia House of Delegates, Thirty-Second District – Letter of Support (April 22, 2009)
   b. Joe T. May, Virginia House of Delegates, Thirty-Third District – Letter of Support (June 28, 2009)

5. **Applicant's Emissions Comparison Charts** (compare emissions of the proposed hybrid energy plant with Dickerson Power Station, Potomac River Power Station, and a typical "clean coal" facility:
   a. Nitrogen Oxides ($NO_x$) (12-09-09)
   b. Sulfur Dioxide ($SO_2$) (12-09-09)
   c. Carbon Dioxide ($CO_2$) (12-09-09)

6. **Local Governing Body Certification Form**, Virginia Department of Environmental Quality (DEQ) – Air Permits – example of the form that the Board of Supervisors would sign if they approve this application. The signed form is required to be submitted to DEQ before DEQ will deem the applicant's air pollution control permit as complete. (12-09-09)

7. **Progress to Shut Coal-Fired Plants** – Applicant-provided article noting Progress Energy Inc.'s plan to replace 11 coal-fired power plants with gas plants in North Carolina by 2017 (12-01-09)

8. **Fairfax County Water Authority's Comments** (12-08-09)

9. **Applicant's Potomac River Daily Discharge Chart** (12-10-09)

ATTACHMENT 1


NOTES

1. THE FINAL LOCATION OF THE VARIOUS ELEMENTS ARE SUBJECT TO THE FINAL DEVELOPMENT PROGRAM AND FINAL ENGINEERING / DESIGN REQUIRED TO MAXIMIZE THE EFFICIENCY AND OVERALL OPERATION OF THE FACILITY.
2. THE EXISTING PARCELS INCLUDED IN THIS APPLICATION ARE SUBJECT TO FUTURE CONSOLIDATION OR BOUNDARY LINE ADJUSTMENTS.
3. PUBLIC USES OR PUBLIC ACCESS WILL NOT BE ALLOWED. ACCESS TO THIS SITE WILL BE ALLOWED ONLY FOR AUTHORIZED EMPLOYEES, CONTRACTORS AND VISITORS. THE ACCESS WILL BE CONTROLLED THROUGH DESIRED SECURITY MEASURES.

- EXHAUST STACK MAX. HEIGHT 149'
- A SECURITY FENCE IS PROPOSED AROUND THE LIMITS OF THE SITE AND THE ULTIMATE LOCATION WILL BE DETERMINED AT FINAL ENGINEERING AND DESIGN
- SEE SHEET 2 FOR OPEN SPACE AREAS AND CALCULATIONS
- (5 = EXHAUST STACK LOCATION)

KEY

1. WATER STORAGE TANK (65' MAX. HEIGHT)
2. WATER STORAGE TANK (65' MAX. HEIGHT)
3. AQUEOUS AMMONIA TANK (APPROX. 81% WATER) (20' MAX HEIGHT)
4. FIRE PUMP (20' MAX. HEIGHT)
5. ADMINISTRATION BUILDING, INCLUDING WAREHOUSE, MAINTENANCE SHOP, AND WATER TREATMENT SYSTEM (40' HEIGHT)
6. GAS HEATER / METERING STATION (20' MAX. HEIGHT)
7. EMERGENCY GENERATOR (20' MAX. HEIGHT)
8. PROPANE STORAGE TANK (20' MAX. HEIGHT)
9. AUXILIARY STEAM BOILER (30' MAX. HEIGHT)
10. COOLING TOWER (75' MAX. HEIGHT)
11. DEMIN WATER TANK (45' MAX. HEIGHT)
12. GUARD HOUSE/VISITOR CENTER (20' MAX. HEIGHT)
13. COMBUSTION TURBINE #4 PEAKER (70' MAX. HEIGHT)
14. COMBUSTION TURBINE #3 PEAKER (70' MAX. HEIGHT)
15. COMBUSTION TURBINE #2 & HRSG (COMBINE CYCLE) (110' MAX HEIGHT)
16. COMBUSTION TURBINE #1 & HRSG (COMBINE CYCLE) (110' MAX HEIGHT)
17. STEAM TURBINE (COMBINE CYCLE) (100' MAX. HEIGHT)
18. COOLING TOWER ZLD WATER TREATMENT (40' MAX. HEIGHT)
19. MULTIMEDIA WATER FILTERS (30' MAX. HEIGHT)

CHECKED

ENGINEERS · SURVEYORS · LAND PLANNERS · LANDSCAPE ARCHITECTS
William H. Gordon Associates, Inc.
4494 Evergreen Parkway, Suite 100 Leesburg, Virginia 20176
(703) 729-8009 · FAX (703) 478-1677

DATE July, 2009

SCALE HORZ: 1"=200'
VERT: N/A

ZMAP/SPEX/CMPT PLAT

PROJECT
GEP/S HYBRID ENERGY PARK.
ZMAP 2009-0005
SPEX 2009-0009 / CMPT 2009-0001
CATOCTIN ELECTION DISTRICT
LOUDOUN COUNTY, VIRGINIA

JOB 2720-0102

CADD

SHEET 4 OF 4

**This page intentionally left blank.**



**ATTACHMENT 2**

**This page intentionally left blank.**

**ATTACHMENT 3**

**This page intentionally left blank.**

COMMONWEALTH OF VIRGINIA
HOUSE OF DELEGATES
RICHMOND

DAVID E. POISSON
2 PIDGEON HILL DRIVE
SUITE 340
STERLING, VIRGINIA 20165

THIRTY-SECOND DISTRICT

COMMITTEE ASSIGNMENTS:
COUNTIES, CITIES AND TOWNS
MILITIA, POLICE AND PUBLIC SAFETY

Wednesday, April 22, 2009

John Andrews, President
Andrews Community Investment Corporation
P.O. Box 660
Hamilton, Virginia 20159

Dear John,

I've recently been made aware that you've proposed to build a power plant in Loudoun County, using natural gas, treated wastewater and solar to create energy for Northern Virginia – a proposal for which I wish to express my enthusiastic support.

I strongly believe the region would benefit greatly from having a clean energy source located closer to where electricity users are. Because of Northern Virginia's continued growth, we need to ensure that our energy future is secure, one very important element of which is making certain the sources upon which we rely for energy are reliable. Consumers in our region have experienced significant increases in electricity costs largely due to inefficient energy sources that must be transported across the region on high-tension power lines to reach users in Loudoun County.

Your project also has the ability to provide a significant – and much-needed – revenue stream to underwrite the cost of providing other public services to Virginians for decades to come. You've estimated, for example, that the plant could generate $8 to $12 million in annual tax revenue for Loudoun County, which could then be used to improve our transportation infrastructure or pay for public safety and education.

As our country attempts to reduce its dependence on coal-powered energy and foreign oil, it's incumbent on us to search for cleaner sources from which to generate energy. I applaud your leadership in identifying new energy solutions for our region and the nation. I have every confidence that this venture – as with so many others with which you've been associated in our community – will be resoundingly successful.

Kindest regards,

David E. Poisson

DISTRICT: (703) 421-6899 • RICHMOND: (804) 698-1032 • E-MAIL: DELDPOISSON@HOUSE.STATE.VA.US



**ATTACHMENT 4**

COMMONWEALTH OF VIRGINIA

HOUSE OF DELEGATES

RICHMOND

JOE T. MAY
POST OFFICE BOX 2146
LEESBURG, VIRGINIA 20177-7538

THIRTY-THIRD DISTRICT

COMMITTEE ASSIGNMENTS:
TRANSPORTATION (CHAIRMAN)
APPROPRIATIONS
SCIENCE AND TECHNOLOGY

July 28, 2009

Dear Mr. Andrews,

I enjoyed our recent meeting to discuss your proposed construction of a combined heat and power plant utilizing natural gas, steam, effluent and solar. As an engineer and member of the House of Delegates, it is apparent that your proposal addresses some important needs in Loudoun County.

In my district and Virginia wide, we see above ground transmission lines being proposed to bring electrical energy from outside of the region. Your proposal will allow Loudoun County and Leesburg to take control of much of its own energy and environmental future by using clean natural gas, re-using treated wastewater that would otherwise enter the Potomac River and constructing a large solar array. As an engineer, I fully grasp the technology you are presenting and understand it to be state-of-the-art. The result will be one of the cleanest power facilities of its kind in the eastern United States.

The benefits of having stable energy production in our community are multi-faceted. Reliable energy will put Loudoun County and the greater Northern Virginia region at a competitive advantage in attracting high-profile businesses and economic development to the region. The estimated annual tax revenue of $8-12 million to Loudoun County will serve as an economic engine for our residents and will work to keep our tax bills down.

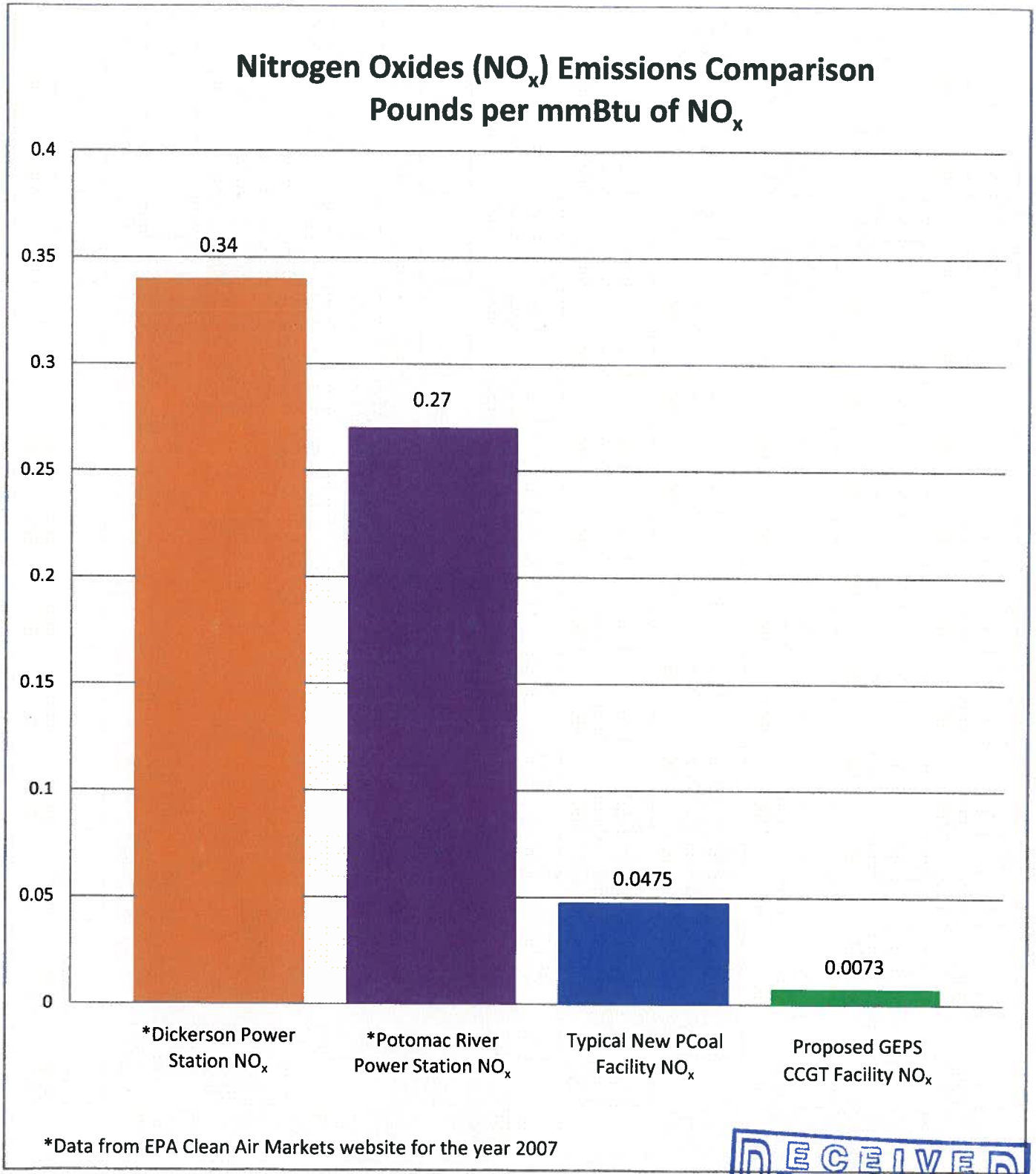
For those reasons and others I support your proposal to construct a new generation power facility inside Loudoun's borders. Please feel free to contact me or my office should you have questions moving forward.

Best Regards,

Joe T. May

Joe T. May

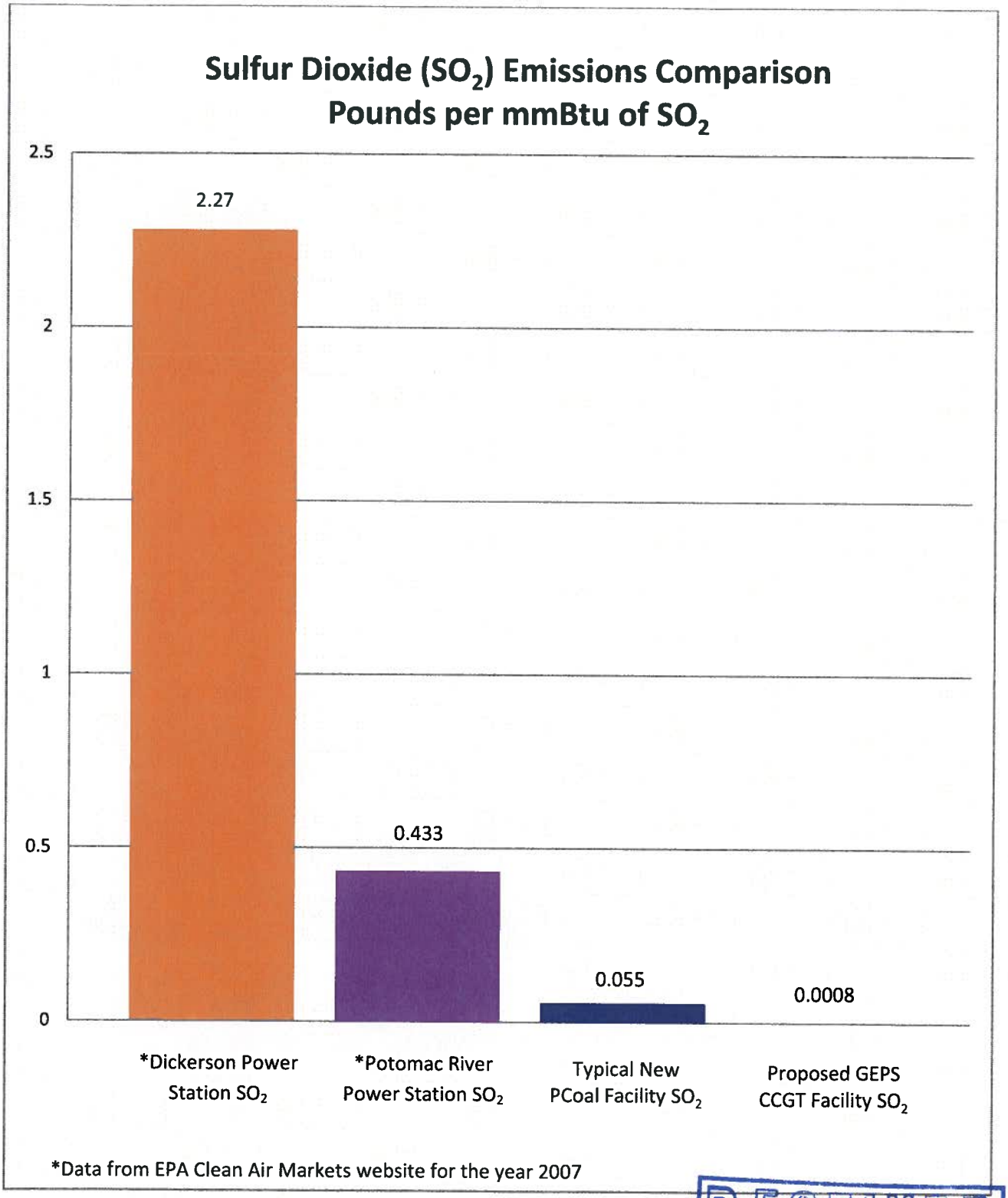
DISTRICT (703) 777-1191 • FAX (703) 777-6059 • RICHMOND (804) 698-1033 • E-MAIL DELJMAY@HOUSE.STATE.VA.US

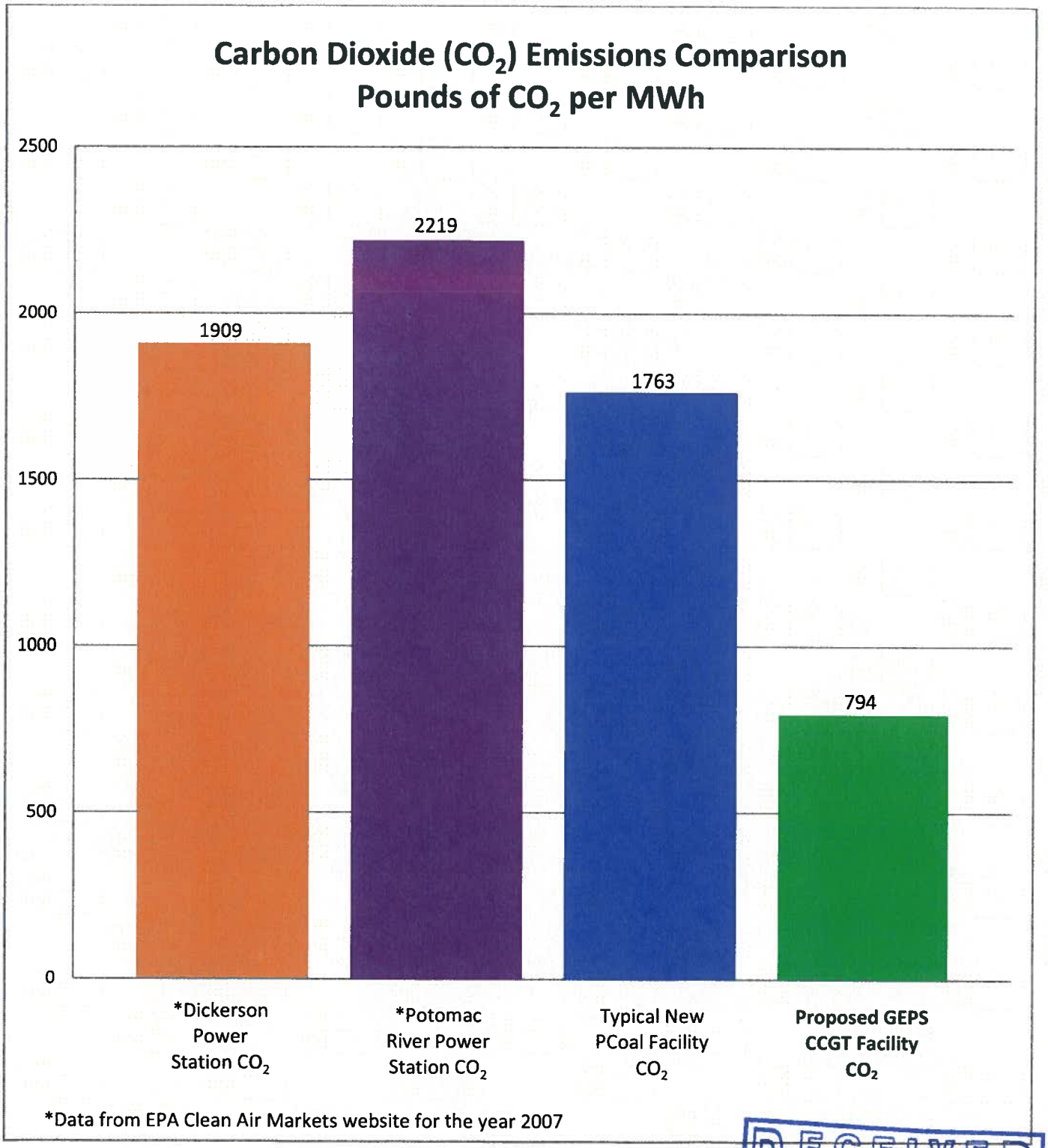



*Data from EPA Clean Air Markets website for the year 2007



**ATTACHMENT 5**





**This page intentionally left blank.**

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY - AIR PERMITS

## LOCAL GOVERNING BODY CERTIFICATION FORM

| | |
|---|---|
| Facility Name: | Registration Number: |
| Applicant's Name: | Name of Contact Person at the site: |
| Applicant's Mailing address: | Contact Person Telephone Number: |
| Facility location (also attach map): | |
| Facility type, and list of activities to be conducted: | |

The applicant is in the process of completing an application for an air pollution control permit from the Virginia Department of Environmental Quality. In accordance with § 10.1-1321.1. Title 10.1, Code of Virginia (1950), as amended, before such a permit application can be considered complete, the applicant must obtain a certification from the governing body of the county, city or town in which the facility is to be located that the location and operation of the facility are consistent with all applicable ordinances adopted pursuant to Chapter 22 (§§ 15.2-2200 et seq.) of Title 15.2. The undersigned requests that an authorized representative of the local governing body sign the certification below.

| | |
|---|---|
| Applicant's signature: | Date: |

**The undersigned local government representative certifies** to the consistency of the proposed location and operation of the facility described above with all applicable local ordinances adopted pursuant to Chapter 22 (§§15.2-2200 et seq.) of Title 15.2. of the Code of Virginia (1950) as amended, as follows:

**(Check one block)**

☐ The proposed facility is **fully consistent** with all applicable local ordinances.

☐ The proposed facility is **inconsistent** with applicable local ordinances; see attached information.

| | |
|---|---|
| Signature of authorized local government representative: | Date: |
| Type or print name: | Title: |
| County, city or town: | |

**[THE LOCAL GOVERNMENT REPRESENTATIVE SHOULD FORWARD THE SIGNED CERTIFICATION TO THE APPROPRIATE DEQ REGIONAL OFFICE AND SEND A COPY TO THE APPLICANT.]**



**ATTACHMENT 6**

# LOCAL GOVERNING BODY CERTIFICATION FORM

Effective July 1, 1993, Section 10.1-1321.1 of the Code of Virginia specifies that:

***"A. No application for a permit for a new or major modified stationary air pollution source shall be considered complete unless the applicant has provided the Director with notification from the governing body of the county, city, or town in which the source is to be located that the location and operation of the source are consistent with all ordinances adopted pursuant to Chapter 22 ( 15.2-2200 et seq.) of Title 15.2."***

***"B. The governing body shall inform in writing the applicant and the Department of the source's compliance or noncompliance not more than 45 days from receipt by the chief executive officer, or his agent, of a request from the applicant."***

***"C. Should the governing body fail to provide written notification as specified in subsection B of this section, the requirement for such notification as specified in subsection A of this section is waived."***

Definitions:

- Any new site (not previously designated as a stationary source) upon which one or more emissions units undergo initial construction, installation, or relocation shall be considered a **New Source**; a "green field" source.
- Any existing stationary source making changes to emission units (construction, installation, modification, reconstruction, or relocation) shall be considered a **Modified Source**. Modified sources need only use this form if the modification is major.
- Any stationary source that emits, or has the potential to emit, 100 tons or more per year of any regulated air pollutant shall be considered a **"Major Source"**. "Regulated air pollutant" is defined in 9 VAC 5-80-1110 C.
- Any modified source, the modification of which is equivalent to the definition of a "major source", shall be considered a **Major Modified Source**.
- Any "major source", the modification of which results in a "significant" net emissions increase of any regulated pollutant, shall be considered a **Major Modified Source**.
- Emissions levels that are considered **Significant** for stationary sources located in Prevention of Significant Deterioration Areas are listed in the definition of "significant" in 9 VAC 5-80-1710 C. Emission levels that are considered "significant" for stationary sources located in Non-attainment Areas are listed in the definition of "significant" in 9 VAC 5-80-2010 C.

If required, the attached form should be submitted for all applications to the appropriate officials of the county, city, or town in which your facility is to be located. (The form is not required for Operating Permits insofar as these pertain to previously existing and operating sources.)

1. Applicant: Fill out the top section of the form and sign in the center block. Send the partially completed notification form to the local governing body by certified mail/return receipt, and keep a copy of the return receipt. A copy of the return receipt should then be submitted with the application to the appropriate DEQ regional office.

2. Local officials: You may use either this form or a certification designed by the locality. If you use this form, please fill out the bottom section of the form. The form asks you to certify that the facility is or will be consistent with all applicable local ordinances. Please check the appropriate box, sign the form and if there is inconsistency, please attach an explanation that indicates the corrective measures being taken. Then forward the form (or the certification designed by the locality) to the appropriate DEQ regional office within 45 days following receipt of the request from the applicant. (A postmark date within 45 days of receipt is sufficient.) Send a copy of the completed form to the applicant.

There are two ways for an applicant for a new or major modified stationary air pollution source permit to comply with this requirement. (1) When a completed form is received by DEQ indicating that locality certifies that the location and operation of the proposed source are in compliance with local

ordinances, then this requirement is met. (2) If the locality fails to respond in writing to the request within 45 days of receipt, then this requirement is met when the applicant provides DEQ with evidence that the locality has received the form and has failed to respond in writing within the 45-day period.

**This page intentionally left blank.**

**From:** Ronald Figg <rfigg1@verizon.net>
**To:** 'Ken Niemann' <kniemann1@verizon.net>; jordandim@aol.com; andcominv@aol.com; Papajack2@aol.com
**Subject:** Progressive to close 11 coal plants
**Date:** Tue, Dec 1, 2009 6:25 pm

---

GEP/S....FYI

Regards, Ron Figg PE
804-921-0771



## Progress to Shut Coal-Fired Plants

DECEMBER 1, 2009, 4:58 P.M. ET
By REBECCA SMITH

Bowing to rising environmental pressures, Progress Energy Inc. said it will shut 11 coal-fired power plants at four sites in North Carolina by 2017 and replace the capacity with gas-burning units.

The action is part of a trend in which utilities are shuttering older, smaller coal-burning units and embracing cheap natural gas as a "bridge fuel" to fill the gap until the 2020-to-2030 time frame, when nuclear power and renewable energy are expected to be larger sources of low-carbon electricity.

The power plants facing retirement in North Carolina were built between 1952 and 1972 and thus will be of retirement age by 2017. They constitute 30% of the utility's North Carolina coal capacity and, in an earlier era, might have been refurbished. But Progress has concluded that it would cost too much money to add scrubbers to reduce controlled pollutants like sulfur dioxide and it also suspects that it will cost too much, in coming years, to purchase the emission allowances that likely will be required for carbon dioxide emissions.

Bill Johnson, Progress chief executive, said the coal-to-gas strategy will reduce the utility's total carbon-dioxide emissions significantly, although not by the goal set by President Obama, to cut emissions 17 percent by 2020. "It's still a single-digit number for us, but it's moving in the right direction," Mr. Johnson said in an interview Tuesday. "I think others will follow."

North Carolina Gov. Bev Perdue, applauded the announcement, saying that it was "important for North Carolina's air quality" and "is good for the environment and the economy."

The announcement wasn't good news for the coal industry. One coal publication estimated that the news will reduce Progress' consumption of Central Appalachian coal by about 25%.

Other utilities have said they will shut coal-fired power plants in coming years, too. Duke Energy Corp., for example, said it will shut down 18 coal plants totaling 1,600 megawatts by 2020 and replace them with a mix of resources.

Progress Energy hopes to build two nuclear power plants in the next decade at an expected cost of $16.5 billion to $17 billion.

After 2017, Progress would continue to operate three coal-fired plants in North Carolina, totaling 3,542 megawatts, in which it has invested more than $2 billion for pollution control equipment. That equipment curbs nitrogen oxide and sulfur dioxide emissions but does nothing to control carbon dioxide, regarded as the leading greenhouse gas.

**ATTACHMENT 7**

Mr. Johnson said the utility was asked by North Carolina utility regulators to come up with a plan for meeting the state's energy needs in coming years, after it sought permission to build a big gas-fired power plant.

**This page intentionally left blank.**

Fairfax Water

FAIRFAX COUNTY WATER AUTHORITY
8570 Executive Park Avenue
Fairfax, Virginia 22031-2218
www.fairfaxwater.org



CHARLES M. MURRAY
GENERAL MANAGER
TELEPHONE (703) 289-6011

STEVEN T. EDGEMON
DEPUTY GENERAL MANAGER
TELEPHONE (703) 289-6012

FAX (703) 698-1759

December 8, 2009

Ms. Judy Birkitt
Project Manager
Department of Planning
Loudoun County Government
1 Harrison Street, S.E.
Leesburg, VA 20175

RE: ZMAP-2009-0005
GEP/S Hybrid Energy Park

Dear Ms. Birkitt:

Fairfax Water is aware that Green Energy Partners (GEP) has submitted the above-referenced application to rezone 90.5 acres in Loudoun County to facilitate construction of a 900-MW energy-generating facility. The plant is designed to use gas combustion turbine generators and a steam turbine generator to produce the power; water would be used to cool the plant and to produce steam. As described in the documents associated with the application, this facility may use as much as 5 million gallons per day of cooling water during its operation, supplied by effluent from the Town of Leesburg wastewater treatment facility or alternatively from Loudoun Water's planned quarry supplies. This water is expected to be used consumptively, meaning it will not be available to downstream users of the Potomac River.

As a downstream water supplier, Fairfax Water is tracking the GEP application as well as other consumptive wastewater reuse proposals in the region. LS Power is pursuing potential use of wastewater from the Upper Occoquan Service Authority Advanced Wastewater Treatment Plant in the Occoquan Watershed as cooling water for its proposed facility. Discharges from Loudoun Water's Broad Run Advanced Wastewater Treatment Plant are anticipated to be reused for irrigation and other purposes. The cumulative amount of water removed from the available water supply by these and future applications becomes increasingly significant and cannot be disregarded.



**ATTACHMENT 8**

Promulgation in 2007 of Virginia's *Water Reclamation and Reuse Regulation* (9VAC25-740-10 et seq) has generated renewed interest in municipal wastewater as a potential water source for industrial and other uses. This regulation establishes water quality standards and treatment requirements associated with various reuse applications of municipal wastewater to protect the environment and public health. This regulation also addresses permitting, safety, and public access, among other relevant issues.

It is not only Fairfax Water but the Washington Metropolitan region that could be affected by this loss of downstream flows. Fairfax Water is a signatory to the Washington Metropolitan Area's *Water Supply Coordination Agreement*. Regional water supply operations on the Potomac River are governed by two historic agreements, the Low Flow Allocation Agreement (LFAA) and the Water Supply Coordination Agreement (WSCA). The LFAA, signed in 1978 by FW, the Washington Aqueduct (WA), and the Washington Suburban Sanitary Commission (WSSC), area states, and the federal government, establishes the formula for allocating water among the three participating water suppliers during drought conditions, should Potomac River flows be inadequate to meet demands. The subsequent WSCA, signed in 1982 by Fairfax Water, WA, WSSC, as well as the Interstate Commission on the Potomac River Basin (ICPRB), was put in place to minimize the likelihood of implementing the LFAA. The WSCA established operating procedures for use of the mainstem Potomac River as well as off-Potomac reservoirs during low-flow conditions, and a cost-sharing approach for water resources development. The WSCA also established support for ICPRB's *Section for Cooperative Operations for Water Supply on the Potomac* (CO-OP) to help manage drought operations and continued water supply planning efforts.

It should be noted that Fairfax Water recently participated in a pre-application panel facilitated by the Virginia Department of Environmental Quality regarding Loudoun Water's planned water treatment plant and associated withdrawals. Fairfax Water has evaluated the available information regarding the Loudon Water proposal and has submitted comments to DEQ requesting additional information, analysis, and dialogue on this proposal, as noted in the attached letter.

Regional coordination to date under the WSCA has resulted in an efficient, economical, and reliable water supply system for the customers of member utilities. To best protect the existing system, including water available for Loudoun Water either through Fairfax Water or its own supply, we ask that the Loudoun County Planning Commission and Board of Supervisors consider establishing the following conditions related to this application:

1. Consideration of air-cooled facilities to minimize the amount of water consumptively used by this facility and/or
2. Requiring mitigation of the consumptive use of water during times of low flow, through establishment of water storage, financial contributions to regional storage facilities, and/or other means.

Your strong consideration of these concerns is appreciated. We would be happy to meet with you to further discuss our concerns. Please contact Jamie Bain Hedges, Director, Planning and Engineering, at (703) 289- 6325, if you have questions or would like to discuss this issue further.

Sincerely,

Charles M. Murray
General Manager

Enclosure: Fairfax Water Letter to DEQ re Potomac Withdrawals

cc: Tom Jacobus, General Manager
Washington Aqueduct

Teresa Daniell, Deputy General Manager
Washington Suburban Sanitary Commission

Joe Hoffman, Executive Director
Interstate Commission on the Potomac River Basin

Dale Hammes, General Manager
Loudoun Water

Randy Shoemaker, Director
Town of Leesburg Department of Utilities

Scott Kudlas, Manager, Office of Water Supply Planning
Virginia Department of Environmental Quality

Fairfax Water

FAIRFAX COUNTY WATER AUTHORITY
8570 Executive Park Avenue
Fairfax, Virginia 22031-2218
www.fairfaxwater.org

PHILIP W. ALLEN, CHAIRMAN
RICHARD G. TERWILLIGER, VICE-CHAIRMAN
FRANK R. BEGOVICH, SECRETARY
LINDA A. SINGER, TREASURER
BILL G. EVANS
BURTON J. RUBIN
HARRY F. DAY
A. DEWEY BOND
J. ALAN ROBERSON
RICHARD DOTSON

CHARLES M. MURRAY
GENERAL MANAGER
TELEPHONE (703) 289-6011

STEVEN T. EDGEMON
DEPUTY GENERAL MANAGER
TELEPHONE (703) 289-6012

FAX (703) 698-1759

November 25, 2009

Ms. Brenda Winn
Virginia Water Protection Water Withdrawal Project Manager
Water Protection Permit Program
Virginia Department of Environmental Quality
P.O. Box 1105
Richmond, VA 23218

Dear Ms. Winn:

Thank you for the opportunity to comment on Loudoun Water's (LW) proposed 20-MGD Potomac River withdrawal. This withdrawal will support a proposed 20-MGD water treatment plant, with a planned future capacity expansion to 40 MGD. LW's proposed intake will be located approximately ten miles upstream of Fairfax Water's existing intake and, based on LW's analysis, the facilities must come on line by 2016 to meet projected demands. As a downstream water supplier and a signatory to the Washington Metropolitan Area's (WMA) Water Supply Coordination Agreement, Fairfax Water is critically evaluating all available information regarding this proposal and looking forward to continued dialogue to ensure that the proposal does not adversely impact its customers or the customers of its WMA partner utilities, the Washington Aqueduct (WA) and the Washington Suburban Sanitary Commission (WSSC).

As you are aware, regional water-supply operations on the Potomac River are governed by two historic agreements, the Low Flow Allocation Agreement (LFAA) and the Water Supply Coordination Agreement (WSCA). The LFAA, signed in 1978 by Fairfax Water, WA, and WSSC, area states, and the federal government, establishes the formula for allocating water among the three participating water suppliers during drought conditions, should Potomac River flows be inadequate to meet demands. The subsequent WSCA, signed in 1982 by Fairfax Water, WA, WSSC, as well as the Interstate Commission on the Potomac River Basin (ICPRB), was put in place to minimize the likelihood of implementing the LFAA. The WSCA established operating procedures for use of the main-stem Potomac River, as well as off-Potomac reservoirs during low-flow conditions, and a cost-sharing approach for water-resources development. The WSCA also established support for ICPRB's Section for Cooperative Operations for Water Supply on the Potomac (CO-OP) to help manage drought operations and continued water-supply planning efforts.

In 2006 the Commonwealth promulgated revisions to the Virginia Water Protection Permit regulation associated with water-supply planning. Virginia Administrative Code Section 25-210-110 Paragraph A.2 states:

*"VWP permits issued for surface water withdrawals from the Potomac River between the Shenandoah River confluence and Little Falls shall contain a condition that requires the permittee to reduce withdrawals when the restriction or emergency stage is declared in the Washington Metropolitan Area under the provisions of the Potomac River Low Flow Allocation Agreement; or when the operating rules outlined by the Drought-Related Operations Manual for the Washington Metropolitan Area Water Suppliers, an attachment to the Water Supply Coordination Agreement, are in effect. The department, after consultation with the Section for Cooperative Water Supply Operations on the Potomac (CO-OP) shall direct the permittee as to when, by what quantity and for what duration withdrawals shall be reduced."*

This regulatory language was established to ensure new raw withdrawals are operated consistently with established protocols on the Potomac River, with the intention of avoiding detrimental impacts to the current WMA system. Within this regulatory authority, DEQ is authorized to incorporate language into LW's VWP permit reflecting appropriate withdrawal reductions during times of low flow on the Potomac or when the operating rules of the WSCA are in effect, in coordination with CO-OP.

It should be noted that, unlike historic upstream municipal withdrawals on the Potomac River, future municipal withdrawals may not be returned through traditional wastewater treatment discharges at as high a rate as before. Improved treatment technologies, economic incentives, and pressure to reduce wastewater discharges for water-quality purposes have coalesced to make sale of municipal wastewater attractive to wastewater utilities. Discharges from LW's Broad Run Advanced Wastewater Treatment Plant are anticipated to be reused under the authority of Virginia's Water Reclamation and Reuse Regulation. This new landscape results in increased consumptive use of municipal withdrawals, requiring additional evaluation and analysis to assess potential downstream impacts.

Based on this background and the regulatory framework of the VWP permitting process, I would like to emphasize the following:

***Permitting Process - Avoidance of Impacts to Current System.*** We ask that, within its regulatory authority, DEQ incorporate language into LW's VWP permit reflecting adherence to operating rules to be developed by CO-OP and endorsed by the CO-OP utilities. Such operating rules would be developed based on "no-impact" of proposed facilities. This effort would leverage existing CO-OP staff expertise and existing modeling tools, with input from LW to confirm assumptions and approach. Results of this effort would also inform LW decisions regarding needed capital facilities and the associated level of investment. Evaluation of the adequacy of the available quarry

storage to support the proposed treatment plant, including the planned expansion, is critical. To the extent that the quarries mitigate downstream impacts, these storage facilities must be available prior to the treatment plant coming on line.

***Regional Benefits – Additional Coordination.*** It is strongly recommended that the potential for regional benefits of the quarries be differentiated from the concept of "no-impact" within the permitting process. LW has expressed interest in participating in the CO-OP system and has noted the potential regional benefits of the planned quarries, including those currently anticipated to be in service beyond the planning horizon. Such benefits should be considered as part of a separate negotiation process with the CO-OP utilities. Should LW have an interest in CO-OP participation, including cost-sharing of future water-resources development, we invite them to meet with the CO-OP directly and outside of the permitting process to quantify the potential benefits and any cost-sharing possibilities.

The impacts of potential changes to the Potomac River system, including any substantial new raw-water withdrawals, must be determined quantitatively and documented clearly. Although LW has been forthright in making us aware of their plans, questions remain regarding the assessment thus far. More specifically, the following questions and concerns regarding the LW proposal must be addressed before Fairfax Water or the CO-OP utilities can support issuance of a VWP permit for this facility:

## Quarry Availability

The schedule for use of both Quarry A and Quarry C for water-supply storage and any risks or limitations to acquiring the anticipated storage volumes according to the schedule must be defined. Determination of the impact on existing users of the Potomac requires a definitive time frame for which the quarry can be used for water-supply storage. The treatment plant and quarry construction schedules must be aligned to eliminate any potential impact related to the quarry not being available to support the treatment facilities. Similarly, the potential expansion of the water treatment plant (WTP) capacity beyond 20 MGD prior to the availability of Quarry C for water storage exceeds the LW-identified storage needs, as identified in Technical Memorandum 15 (CH2MHill, 2009), and may impact the existing users of the Potomac River. To further evaluate these impacts, the anticipated time frame for expansion of the WTP must be clarified.

## Raw-Water Pumping and Transmission

The initial and expanded pumping capacities and the anticipated timing for additional pumping capacities should be clarified. To fully evaluate the regional benefits of the quarry, consideration should also be given to allowing for adequate release of quarry water back into the Potomac River. The raw-water pumping and release capacity

will be a factor affecting usage of the water-storage quarry for both no-impact and regional-benefit scenarios.

**Quarry Storage Needs**

A list of all adjustments to the hydrologic time series to determine the quarry storage needs identified in Table(s) 1 and 2 of Technical Memorandum 15 (Ch2MHill, 2009) is requested. This should include all adjustments to the hydrologic time series, including existing users' water-supply demands, upstream consumptive use for power and irrigation, and wastewater return flows. Although ICPRB documents are referenced, a consolidated listing that has been updated to reflect the LW study would be beneficial.

**Water Treatment Plant Operation and Supply from Others**

Clarification of the anticipated use of the WTP and supply from Fairfax Water and the City of Fairfax in order of preference and/or as a fraction of the demand is requested. The amount of supply used from each source will impact the evaluation of the impacts of the project on the existing users of the Potomac River.

**Demand Projections**

During its review, Fairfax Water noticed that the demands documented in Project Water Supply Demands - Central Service Area (Loudoun Water, 2009) are roughly 30% higher than estimates developed by the ICPRB CO-OP as published in the *Draft 2010 Washington Metropolitan Area Water Supply Reliability Study Part 1: Demand and Resource Availability Forecast for the Year 2040 (ICPRB, 2009).* Discussion is warranted to clarify the assumptions reflected in each demand set in order to ensure that LW demands are appropriately represented. Demand projections impact all other aspects of the planning process and are fundamental to the analysis.

**Other Quarry Considerations**

Fairfax Water has some experience with evaluating quarries for use as water-supply storage facilities, and suggests additional investigation may be warranted before moving forward. Clarification is suggested on whether detailed geotechnical/geologic investigations of Quarries 'A, B and C' have been performed. Consultant recommendations regarding mining operations to benefit future use as a water supply source and environmental due diligence studies of Quarries 'A, B and C' may also be beneficial. A tunnel between Quarries 'A' and 'B' was also noted (Ch2MHill, 2009); it is unclear whether this will be plugged prior to use of Quarry A for water supply.

Regional coordination under the WSCA to date has resulted in an efficient, economical, and reliable water-supply system for the customers of member utilities. LW has made us aware of and provided information to us on their proposed project; however,

additional dialogue and refinement of the analysis are needed before moving forward with the referenced proposal. Again, under its permitting authority, we ask that DEQ work towards protecting the existing Potomac River water-supply system by incorporation of specific protocols within LW's permit. In parallel, the CO-OP utilities welcome dialogue with LW to develop operating rules for incorporation into the permit and to examine potential regional benefits of the proposed quarries.

Please contact Jamie Bain Hedges, Director, Planning and Engineering, at (703) 289- 6325 if you have questions or would like to discuss this issue further.

Sincerely,

Charles M. Murray
General Manager

cc: Tom Jacobus, General Manager
Washington Aqueduct

Teresa Daniell, Deputy General Manager
Washington Suburban Sanitary Commission

Joe Hoffman, Executive Director
Interstate Commission on the Potomac River Basin

Dale Hammes, General Manager
Loudoun Water

Scott Kudlas, Manager, Office of Water Supply Planning
Virginia Department of Environmental Quality

John Grace, Chief
Source Water Protection & Water Appropriation Permits
Maryland Department of the Environment

# Potomac River

| Daily Discharge | | CFS | Seconds/day | CF/day | Gal/day | Ratio | |
|---|---|---|---|---|---|---|---|
| Minimum 2001 | | 3,300.00 | 86,400.00 | 285,120,000.00 | 2,132,843,011.20 | 0.00234 | 0.23 |
| | 20% | 6,030.00 | 86,400.00 | 520,992,000.00 | 3,897,285,865.92 | 0.00128 | 0.13 |
| Median | | 10,500.00 | 86,400.00 | 907,200,000.00 | 6,786,318,672.00 | 0.00074 | 0.07 |
| Mean | | 15,400.00 | 86,400.00 | 1,330,560,000.00 | 9,953,267,385.60 | 0.00050 | 0.05 |
| | 80% | 21,000.00 | 86,400.00 | 1,814,400,000.00 | 13,572,637,344.00 | 0.00037 | 0.04 |
| Max 1932 | | 102,000.00 | 86,400.00 | 8,812,800,000.00 | 65,924,238,528.00 | 0.00008 | 0.01 |

1 cf = 7.48051 gal

Ratio 5,000,000 GPD

Point of Rocks MD

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Minimum 1966 | | 870 | 86,400.00 | 75,168,000.00 | 562,294,975.68 | 0.00889 | 0.89 |
| | 20% | 2080 | 86,400.00 | 179,712,000.00 | 1,344,337,413.12 | 0.00372 | 0.37 |
| Median | | 2990 | 86,400.00 | 258,336,000.00 | 1,932,485,031.36 | 0.00259 | 0.26 |
| Mean | | 4080 | 86,400.00 | 352,512,000.00 | 2,636,969,541.12 | 0.00190 | 0.19 |
| | 80% | 5370 | 86,400.00 | 463,968,000.00 | 3,470,717,263.68 | 0.00144 | 0.14 |
| Max 1989 | | 20600 | 86,400.00 | 1,779,840,000.00 | 13,314,110,918.40 | 0.00038 | 0.04 |

DC Little falls

| | | | | | | |
|---|---|---|---|---|---|---|
| 385 | 86,400.00 | 33,264,000.00 | 248,831,684.64 | 0.02009 | 2.01 |
| 2010 | 86,400.00 | 173,664,000.00 | 1,299,095,288.64 | 0.00385 | 0.38 |
| 3250 | 86,400.00 | 280,800,000.00 | 2,100,527,208.00 | 0.00238 | 0.24 |
| 4430 | 86,400.00 | 382,752,000.00 | 2,863,180,163.52 | 0.00175 | 0.17 |
| 5070 | 86,400.00 | 438,048,000.00 | 3,276,822,444.48 | 0.00153 | 0.15 |
| 22800 | 86,400.00 | 1,969,920,000.00 | 14,736,006,259.20 | 0.00034 | 0.03 |

Data from United States Geological Survey (USGS) at http://waterdata.usgs.gov/md/nwis/uv?01646500
Quantities are cubic feet per second
1 cf = 7.48051 gal
September first day:
3,810 Cubic feet per second
28,499 Gal per second
1,709,928 gal per minute
102,595,680 gal per hour
2,462,296,320 gal per day

ATTACHMENT 9